

AMENDMENT OF THE CLAIMS

1. (currently amended) A method of automatically laying out pieces to be cut out from remnants of a flexible material having non-uniform characteristics, and to be used for making articles, said method comprising:

establishing, for a given type of remnant ~~remnants of a determined type~~, at least one generic mask generically applicable to the given type of remnant and whose area is subdivided into ~~various~~ zones which correspond to different value levels of a characteristic of ~~the material of the remnant~~ the given type of remnant;

assigning a set of constraints to at least some of ~~the said component pieces of a determined type of article, which~~ wherein the set of constraints includes at least one value constraint for a characteristic of ~~the material of the~~ the given type of remnant;

defining links between at least some of ~~the component~~ the pieces, ~~which~~ wherein the links have different levels as a function ~~in particular~~ of relationships imposed between constraints assigned to the pieces;

digitizing an individual remnant of the given type ~~each remnant~~ in order to obtain an image of the individual remnant;

applying the at least one generic mask to the image ~~of each remnant the mask or each mask corresponding to the type of the remnant~~ by performing dimension matching so as to subdivide the image of the individual remnant into ~~various~~ zones having uniform characteristics; and

laying out the pieces automatically by disposing the pieces in the zones ~~of the image of the remnant~~ as a function of any constraints assigned to the pieces, and in compliance with the links defined between the pieces.

2. (currently amended) A method according to claim 1, characterized in that, for a given type of remnant of a determined type, the at least one generic mask is established chosen from:

a mask comprising zones having different values for the color shade of the flexible material; and

a mask comprising zones having different values for a surface appearance characteristic of the flexible material.

3. (original) A method according to claim 2 for automatically laying out pieces to be cut out from hides so as to be used to make articles of leather, said method being characterized in that a mask is established that comprises zones having different values for the grain of the leather.

4. (currently amended) A method according to claim 1, characterized in that a the mask is applied to the image of the individual remnant by causing reference axes ~~respectively~~ associated with the mask and with the remnant respectively to coincide.

5. (original) A method according to claim 4 for automatically laying out pieces to be cut out from hides so as to be used to make articles of leather, said method being

characterized in that an axis corresponding to the backbone of the animal from which the hide is taken is used as the reference axis.

6. (previously presented) A method according to claim 4, characterized in that the reference axis is determined by indicating or marking it manually on the remnant.

7. (previously presented) A method according to claim 4, characterized in that the reference axis is determined by analyzing the image of the digitized remnant.

8. (currently amended) A method according to claim 1, characterized in that at least some of the ~~component~~ pieces of a determined type of article are distributed into groups, and any links between the groups and between groups and pieces are defined.

9. (currently amended) A method according to claim 8, characterized in that at least some pieces are distributed into functional groups, each of which comprised the ~~component~~ pieces(s) of a sub-assembly of the article.

10. (previously presented) A method according to claim 1, characterized in that at least some pieces are assigned one or more constraints chosen from:

- a value level for the color shade of the material;
- a value for a surface state characteristic of the material; and
- a preferential angular position relative to a reference axis of the remnant.

11. (original) A method according to claim 10, characterized in that at least some pieces are assigned a preferential angular position constraint relative to a reference axis of the remnant, and are associated with angular position tolerance data corresponding to a maximum allowed angle of rotation relative to the preferential angular position.

12. (previously presented) A method according to claim 1, characterized in that in that links are defined between at least some pieces, which links have different levels as a function of proximity constraints assigned to the pieces.

13. (original) A method according to claim 12, characterized in that the proximity constraints between two pieces are expressed in the form of a maximum distance between two characteristic points on the pieces, or in the form of a maximum difference between values levels of one or more characteristics of the material of the remnant.

14. (currently amended) A method according to claim 1, characterized in that, for a given type of remnant ~~of a determined type~~, a possible coefficient of stretching of the material in at least one determined direction relative to a reference axis of the remnant is defined, and the layout is defined by optionally using the defined stretching capacity.

15. (previously presented) A method according to claim 1, characterized in that at least some pieces or groups of pieces are assigned respective layout priority levels, and the laying out is performed in order of decreasing priority.

16. (currently amended) A method according to claim 15, characterized in that ~~the~~ higher the level of link between a piece or a group of pieces and another piece or group of pieces corresponds directly to ~~the higher~~ the priority level assigned to the piece or group of pieces.

17. (previously presented) A method according to claim 1, characterized in that any flaws on each remnant are detected, and each detected flaw is associated with data representing one of a plurality of predetermined degrees of seriousness, and flaw information is stored comprising data indicating the locations of the flaws on the remnant and the associated data indicating the levels of seriousness.

18. (currently amended) A method according to claim 17, characterized in that each of the ~~component~~ pieces of a determined type of article is associated with information representing the degree of flaw seriousness tolerated by ~~said~~ each piece.

19. (canceled)

20. (canceled)

21. (canceled)

22. (new) A method of selecting pieces to be cut out from remnants, said method comprising:

- establishing a generic mask;
- imaging a first remnant in order to obtain an image; and
- applying the mask to said image.

23. (new) The method of claim 22, further comprising:

- assigning a constraint to pieces of an article;
- defining links between the pieces based upon said constraints; and
- laying out the pieces based upon said links.

24. (new) A method for automatically laying out pieces to be cut out from an animal hide having non-uniform characteristics over its area, the method comprising:

- assigning a relative value of a given hide characteristic to each of at least some of the pieces to be cut out;

- defining a link between at least some of the pieces at least partly in accordance with a respective relative value of the given hide characteristic assigned to the at least some of the pieces to be cut;

- applying a generic mask corresponding to a given type of animal hide to a respective hide of the given type, the mask defining a plurality of zones on the respective hide, each zone corresponding to a hide characteristic that is substantially uniform thereacross;

automatically laying out the pieces to be cut on the respective hide in the zones defined by the mask in accordance with the hide characteristic of each zone of the mask, the relative value of the given hide characteristic assigned to the at least some of the pieces, and the link or links defined between the pieces.

25. (new) The method according to claim 24, wherein the mask comprises one of zones corresponding color shades of the hide, and zones corresponding to a surface appearance characteristic of the hide.

26. (new) The method according to claim 24, wherein applying a mask comprises applying a mask to a digitized image of a respective hide of the given type.

27. (new) The method according to claim 26, wherein applying the mask to the digitized image of a respective hide of the given type comprises performing dimensional matching between the mask and the digitized image of the respective hide of the given type.